REMARKS

Claims 1-74 have been rejected under 35 U.S.C. 102(b) as being anticipated by Edesess U.S. Patent: 5,884,287. Further, the claims have been criticized for insufficient clarity regarding scope and limitation, specifically regarding the words "unique allocation proportions" and "best diversified portfolios", which are used in the application's independent claims 1 and 71, and the claims have been criticized as not producing a useful, concrete and tangible result.

The claimed invention is fundamentally different from Edesess in ways that produce a concrete and tangible result that is useful. In response to the Examiner's review, the independent claims 1 and 71 have been amended, other claims have been amended or cancelled in correspondence with the amended independent claims, and the title has been amended to clarify uniqueness relative to the prior art including Edesess. The Remarks that follow are addressed to the claimed invention's uniqueness over Edesess and the claimed invention's usefulness.

Reconsideration of the claims in the application as amended is respectfully requested in view of the foregoing amendments of the claims and the title and the following clarifying points in support of patentability.

Summary of Principal Differences

The purpose of the claimed invention is to inform individual investors for selection of investments that offer optimal probabilistic prospects for their lifetime investment plans, goals, and priorities, and for investors' informed commitment to these choices.

Requirements for the analysis

Most individuals should and do invest for lifetime goals of multiple periods, for which withdrawals will be made over multiple periods, commonly including withdrawals for the retirement-income goals of each of many retirement years. The time horizon over which the individual holds the investment includes both earlier years when additions are made to the investment, and later years when withdrawals from the investment are made for the goals.

Through all these years, investment return rates will vary from year to year in ways that can best be assessed in terms of probabilities.

Therefore, to analyze and compare investments in a way that is appropriate for most individual investors, the analysis must have the following two fundamental characteristics:

1. ***Full time horizon*** – The analysis must address the probabilities for the full time horizon of the investment, including the earlier years of investment addition and also the later years of investment withdrawals for the goals.
2. ***Full effects of year-to-year return-rate variation*** – The analysis must incorporate and reflect the full effects on future-result probabilities of investments' year-to-year return-rate variations.

Edesess analysis meets neither of these requirements. Edesess does not offer a method for assessing probabilities through the periods to meet multi-period goals, or even claim to do so – it analyzes probabilities only for the periods of investment addition, *before* the periods of withdrawals for the goals. And due to deficiencies in incorporating effects of investments' year-to-year return-rate variations, Edesess analysis is valid and useful only for plans with a single investment for a single future goal.

The claimed invention provides analysis that meets both of these requirements. It assesses investments in probabilities of meeting multi-period goals through probabilistic analysis of the full time horizon from initial investment *through* the periods when the investment is held for withsrawls to meet those periods' goals. It develops its assessments of final-wealth probabilities through simulations that include and fully reflect year-to-year return-rate variations.

How to best help the investor

For determining what investment is optimal for an investor, several criteria must be considered, and for different investors, portfolios offering different tradeoffs among the criteria are optimal. For example, for many investors it is best to choose an investment a little more conservative than the one with best goals-meeting probability, to reduce likelihood of return-rate variations so great they scare the investor off track.

Therefore, the best function for the invention is to inform the investor of how investments compare in several measures important for the selection, to inform the investor for judging and selecting an investment that is optimal in prospects for his plan, goals, and priorities, and also for his informed enduring commitment to the optimal choice.

The claimed investment's purpose is to inform the investor, for the investor's determination of his optimal choice and his informed enduring commitment to the choice. For this purpose the claimed invention enables the investor to see how investments compare in four measures important for the investor's determining of his optimal choice.

Edesess is designed for the opposite purpose: for Edesess rather than the investor to make investment-selection decisions. Edesess has a fixed method for determining what Edesess rather than the investor considers optimal, and after obtaining some numbers from the investor, Edesess decides what investment Edesess considers optimal. For the investor's priorities, the Edesess selection may be far from optimal. And left uninformed, for example regarding the portfolio's prospects for return-rate variations, the investor is more likely to abandon the Edesess choice.

Analysis: Time Horizon

Claimed invention: covers full time horizon

In assessing and comparing investments for an investor's plan and goals, the claimed invention incorporates and reflects investment probabilities over the full time horizon through which the investor holds the investment, including not only the earlier periods of investment addition but also the later periods through which the investor continues to hold the investment for withdrawals to meet his goals.

This fundamental characteristic of the claimed invention is most quickly and clearly seen in the example illustrated in the application's Figs. 16, 22, 25, and 26, as summarized below:

Fig. 16 shows that for the example, the full time horizon is 20 years, including post-retirement goal years 13-20, with goals including withdrawal of $60,000 in each of the

those goal years 13-20 and a desired final balance, *after* those goal-years withdrawals, of $200,000.

Fig. 22 shows that the time horizon for which simulations are developed is the full time horizon of the plan and goals, including both the pre-retirement years 1-12 and the post-retirement years 13-20 of goal-meeting withdrawals. Fig. 22 also shows that uncertainties of investment returns are incorporated throughout this full time horizon, through both the pre-retirement years and the post-retirement years of withdrawals to meet each year's retirement income goal.

Fig. 25 shows that, from such simulations, the wealth result for which a probability distribution is developed is the final wealth at the end of the full time horizon, at end of year 20, *after* the withdrawals to meet the other goals of annual retirement income.

Fig. 26 shows use of the final wealth probability distribution to assess the probability of meeting all the investor's goals. The dotted horizontal line at the height of the investor's goal for final wealth at the end of the plan, $200,000 (in the illustration, 0.200 million), illustrates that the probability that at least this much will be left is 78%. In this analysis, this result is having enough left to meet the final wealth goals *after having met the other goals*, through the withdrawals in each of years 13-20. So this is the probability of meeting *all* the investor's goals.

Edesess: Omits goals-meeting part of time horizon

For investments with multi-period goals, Edesess does *not* assess probabilities for meeting the goals.

Instead, Edesess diverts the focus to probabilities for accumulated wealth from investment addition, *before* the years of continued holding of the investment for withdrawals to meet the investor's goals. While Edesess addresses probabilities for accumulated wealth from multi-period investment, Edesess analysis explicitly excludes the subsequent periods of withdrawals to meet the goals, and thus excludes consideration of probabilities for the uncertain return rates from the investor's continued holding of the investment over the periods of withdrawal for the goals.

This limitation of Edesess is shown explicitly in Edesess Fig. 3a, especially item 100, where the time of the target wealth goal for which probabilities are to be assessed is T_1, *before* subsequent withdrawals for subsequent goals (which Edesess calls "future expenditures"). The same limitatiom is shown in the equation used by Edesess for calculation of an investment-performance requirement to achieve that target wealth, in Edesess column 5 following line 26. This equation includes investment additions -- but *not* amounts or time periods of withdrawals to meet goals. And the same limitation is stated most explicitly in the Edesess Detailed Description, column 5 lines 47-50, where the time T_1 for which target wealth accumulation probabilities are to be assessed and "optimized" is after investment but *before* the uncertain investment results of subsequent periods of withdrawals ("expenditures") to meet goals.

In other words, of the full time horizon through which the investment is held to meet multi-period goals, for which the probabilities are of concern to the investor, Edesess assesses probabilities for only the first half – the investment accumulation half but not the goals-meeting withdrawals half.

For the subsequent periods not addressed by Edesess, Edesess tells the investor to calculate an amount needed to meet goals of periods beyond those addressed by Edesess, according to present value, but doing so requires assuming a certain return rate. This amounts to ignoring the uncertainties and probabilities of return rates as the investment is held through periods of withdrawals for his goals. For most individuals investing for life goals, in which the goals include withdrawals in numerous periods after T_1 to meet goals such as retirement income in each of many years, this Edesess approach is simply unsatisfactory – it simply fails to address the purpose of probabilities for meeting the goals.

Any observer would initially think that by "optimizing" for the investment-addition half of an investor's plan, Edesess must be optimizing probabilities for meeting the subsequent goals. But closer analysis shows this is not true. For the investment-addition half of an investor's plan and time horizon, Edesess does not optimize – it optimizes *for a particular pre-goals target wealth*. For different investor-specified pre-goals target wealths, Edesess identifies different portfolios as "optimal." But for determining what these pre-goals "optimals" offer, how they compare, and

which is optimal in probabilities *for the investor's subsequent-periods goals*, Edesess provides no answer.

An example to illustrate the Edesess time-horizon deficiency

For investors with multi-period goals, Edesess not only fails to assess probabilities of meeting the goals – for figuring out which investments offer best probabilities for meeting the goals, the results Edesess provides are useless. To illustrate, following is an example, with all numbers provided so the example can be independently analyzed.

An investor has $100,000 now, will add $12,000 to his investment at the end of each of the next 20 years, then will retire, and wants to withdraw $60,000 at the start of each of the following retirement years 21-40 and have $100,000 left at the end.

The investor has chosen two asset classes: stocks as represented by an index with expected return rate 10% and return-rate standard deviation 20%, and T-bills with expected return rate 6% and return-rate standard deviation 3%. Their correlation coefficient is shows as 0.27. He is considering a series of 11 portfolios comprising only these two asset classes, with the stock percentage ranging from 0% to 100% in 10% steps – portfolio 1 is 0% stocks and 100% T-bills, portfolio 2 is 10% stocks and 90% T-bills, and so on out to portfolio 11 which is 100% stocks and 0% T-bills. For simplicity, in this example there are no fees, no taxes, no inflation.

The investor would like to know what the 11 portfolios offer, how they compare, and which are best in probability of meeting his goals over years 21-40. But Edesess does not address that. Edesess wants the investor to specify a target for the end of only the first half of the investor's plan, year 20, and will identify the portfolio that offers best probability for that year-20 target.

The investor doesn't know what target to set for year 20, because that is not his goal, and he doesn't know how this relates to best probability for his goals for years 21-40. But to use Edesess, the investor has to divert his focus to guess a target for year 20, so he does:

As a test, the investor specifies a target for year 20 of $400,000. Edesess tell him that for this target, the portfolio that offers highest probability is portfolio 1, 0% stocks and 100% T-bills, which offers 100% probability of meeting the $400,000 year-20 target. Is this the best selection for meeting the investor's goals through years 21-40? Edesess does not answer.

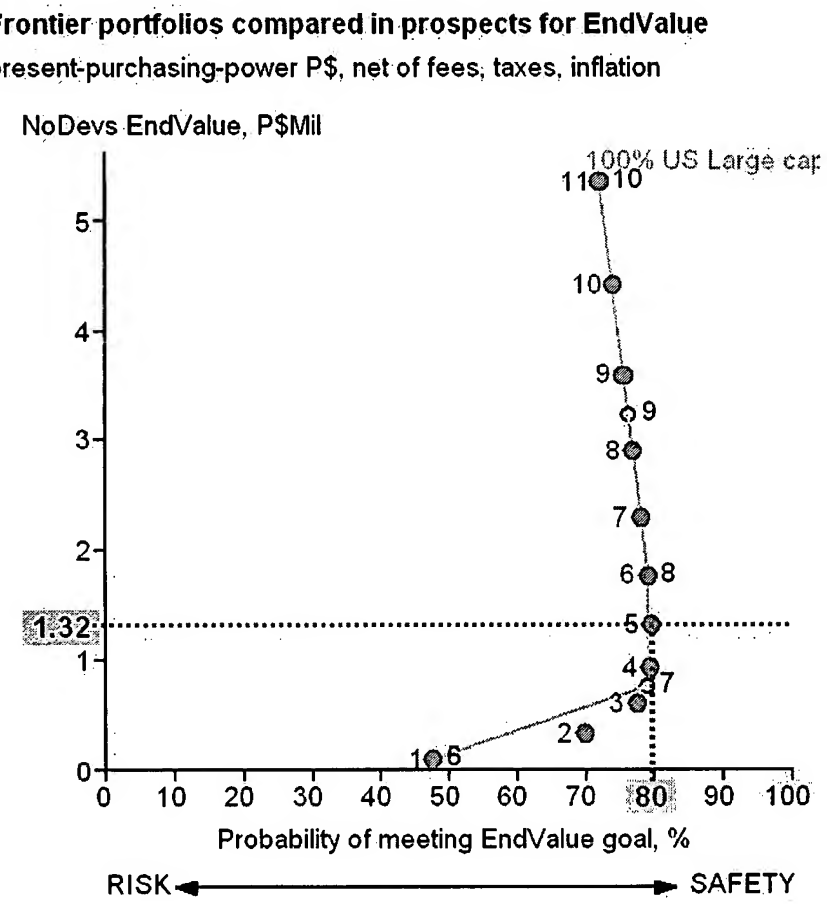
The investor decides to try a higher target for year 20, $600,000. For that target too, Edesess informs the investor that the same portfolio 1, with 0% stocks and 100% T-bills, offers the best probability of meeting the year-20 target: 99%.

The investor tries a third, higher target for year 20, $800,000. For that target, Edesess reports, the best probability is offered by a quite different portfolio, portfolio 7 with 60% stocks and 40% T-bills, which offers 70% probability for the $800,000 year-20 target.

For a fourth test the investor tries a still higher 20-year target of $1 million, and for this target Edesess indicates that the portfolio offering highest probability is portfolio 11, 100% stocks and 0% T-bills, which offers 55% probability of $1 million in year 20.

For different targets for a time that does *not* represent the investor's goals, year 20, Edesess chooses several very different "optimal" portfolios, all the way from all T-bills to all-stocks. Which of these "optimal" portfolios offers optimal probability for meeting the investor's goals, over years 21-40? Portfolio 1, all T-bills, which offers an "optimal" probability of 100% for having $400,000 in year 20? Or portfolio 7, 60% stocks and 40% T-bills, which offers "optimal" probability of 70% for having $800,000 in year 20? Or portfolio 11, entirely stocks, which offers an "optimal" 55% probability of having $1 million in year 20? As to the answer the investor wants -- which portfolio offers optimal probability *for the investor's goals* of years 21-40? -- Edesess does not provide the answer. And from what Edesess does report, the investor can not figure out the answer.

If the investor had the claimed invention instead of Edesess, he could see the answer -- what all 11 portfolios offer and which is best in probability of meeting his goals. The claimed invention would assess each portfolio in the series for the full 40-year time horizon of the .nvestor's plan and goals, and compare them all, as illustrated below on a graph produced by an embodiment of the claimed invention:



On this graph, the dots 1-11 are the portfolios in the series, from #1 all T-bills to #11 all stocks. The claimed invention shows that the one with best probability of meeting the investor's goals,

furthest to right on the graph, is #5, which is the portfolio with 40% stocks 60% T-bills, offering 80% probability of meeting all the investor's goals..

The Edesess omission of periods of investment withdrawals for meeting goals does not make Edesess useless. With this omission Edesess can still be used for investments directed wholly toward a single-time goal, such as purchase of a house at future time $\mathbf{T_1}$. But for the claimed invention's purpose, informing individuals investing for life goals that extend over multiple periods, such as income in each of a series of retirement years, Edesess does not address the purpose.

One could imagine that Edesess might propose a second invention, like the present Edesess but extended to cover an investor's full time horizon including periods of withdrawals for goals. But that would not work. The whole concept of Edesess analysis would not produce valid answers, because for any plan with amounts invested for different numbers of periods, the whole Edesess system of probability analysis fails to incorporate and reflect the full effects of investment return rates' year-to-year return rate variations. This is the second fundamental difference between Edesess and the claimed invention.

Analysis: Year-to-Year Return-Rate Variations

Every investment, asset class, and portfolio addressed by Edesess and the claimed invention has a return-rate standard deviation, signifying that its return rate varies from year to year above and below its expected return rate, as well as providing a technical probabilistic measure of the magnitude of the variations.

For more aggressive asset classes with better growth potential, year-to-year variations are very large. For example, for the U.S. stock market as represented by its best-known index, the S&P 500, the return rate was over 33% in 1997 and under minus 22% in 2002, a difference of over 55%.

Return-rate variations have a powerful effect in lowering long-term results, through an effect that can be called "deviation drag." For a given average return rate, an investment with larger variations above and below that average will produce lower long-term results.

To illustrate, consider $1000 invested for 30 years in the stock market. Very roughly, the stock market has an average return rate near 10% and a return-rate standard deviation near 20%. If the 30-year result is calculated using the 10% average rate every year, omitting year-to-year variations, the result is shown to be $17,400. For comparison, consider an example with the same 10% return-rate average, but each year's return rate is 20% above or below that average rate, which variation conforms to the 20% standard deviation. With the same 10% average and the year-to-year variations, the 30-year result is only $10,500. A result calculated without considering the year-to-year variations would report to the investor a result nearly twice as high as what the result will be with the variations.

Edesess

Edesess does not analyze investments in terms of year-to-year return-rate variations. Instead, the whole Edesess analytic system has two limitations that make it suitable and useful only for plans with investment at only one time and goal at only one subsequent time, with no investment additions of withdrawals along the way.

The understated-uncertainties problem -- Edesess does address return-rate uncertainty, but whatever rate is applied is applied as a single rate through all the years of the time horizon. This can be seen in numerous places in the Edesess document, for example in box 60 in Edesess Fig. 2, and in the Edesess statement of Step 50 on lines 30-32 of column 4. In both places, for a multi-period investment a single return rate is stated. The same approach of a single return rate for multiple periods is shown most explicitly and fully in the main Edesess equation, presented in column 5 following line 26 and repeated three times in columns 8 and 9. In this equation, for any one calculation for all the years of the plan, **r** represents *one* rate of return, and the equation says that for the initial investment amount $\mathbf{V_0}$ and every subsequent additional investment amount $\mathbf{C_t}$, that *one* return rate **r** will be the return rate in *every* year from the time the amount is invested until the end of the time horizon.

In other words, no year-to-year return-rate variation.

For calculation of the probability that, with return-rate variations, a portfolio will over the time horizon achieve a multi-year result as good as a required unvarying return rate, Edesess

contains a statement that suggests a method. That method is suggested, though not specified, in column 5 lines 64-66. However, the method suggested in Edesess is valid *only* for amounts *invested for the full length of the time horizon.*

For amounts invested for fewer years than the full time horizon, such as amounts invested after the initial investment, Edesess fails to fully incorporate and reflect effects of year-to-year return-rate variations. The effect of this analytic deficiency is to commonly present results more optimistic than should be presented.

When amount are held in the investment for different years, in the actual investment the amounts will experience different series of varying return rates that cumulate to different averages. Furthermore, for amounts held in the investment for different numbers of years, the probabilities of achieving a multi-year result as good as a given unvarying return rate are different. With fewer investment years, an investment's return-rate average is less affected by reversion toward the mean and therefore has *more uncertainty* -- greater probability of greater deviation from the expected return rate.

For example, for an investment in the stock market with expected return rate 10% and return-rate standard deviation 20%, for an amount invested for 30 years the probability is 80% that the result will be at least as good as a steady 8%, but for an investment held for only five years, the highest steady rate the result has 80% probability of at least equaling is only 1%. For a 30-year plan with an amount added to this investment for the last five years, for 80% probability Edesess would show the rate for the added amount as over 8% while it should show only about 1%.

The lognormal-assumption problem -- There is another way in which the Edesess system of probabilistic analysis is not suited for plans that include additions or withdrawals along the way. For a multi-period investment plan, Edesess produces a probability distribution based on the assumption that the distribution is lognormal and claims it to be the probability distribution of the end-of-time-horizon wealth of the investment plan. For a plan with amounts invested for different numbers of periods, the wealth accumulation probability distribution commonly has an

appearance similar to lognormal -- but is not lognormal, and represents result probabilities different from those of a lognormal distribution.

Viewed separately, amounts invested for different numbers of periods will produce lognormal wealth accumulation probability distributions of differing skewnesses, and when the amounts are placed in the same investment with common investment periods, correlations make the wealth accumulation distribution different from summing of what the component investments' independent distributions represent. Furthermore, if a new Edesess invention were proposed applying the present Edesess analytic system through the periods of multi-period goals, through inclusion of the years and amounts of withdrawals to meet those goals, the probability distribution of the final wealth would be shaped by further complicated diversions from the lognormal nature that Edesess assumes and produces.

Effect of analytic limitations -- These limitations of the Edesess system of probabilistic analysis do not eliminate Edesess usefulness. For an amount invested at one time for a goal at one later time, these limitations are not relevant and the Edesess analysis is valid and useful.

But for the kinds of investment plans for which the claimed invention is designed, with investment additions in various periods such as during the investor's working years and investment withdrawals for goals in various years such as annual retirement income, these limitations eliminate Edesess from valid competition.

Claimed invention

The claimed invention is entirely based on analyses of investments' future-result probabilities that *do* incorporate and fully reflect year-to-year return-rate variation.

All analyses and presentations of investment result prospects are developed through simulations, wherein each simulation proceeds year by year with different return rates determined and used for different years. Probability distributions for final wealth are determined by running many of these year-by-year simulations, and thus the claimed invention's final wealth probability distributions fully incorporate and reflect the reality of year-by-year return-rate variations.

In the application's Detailed Description, the claimed invention's year-by-year simulation process is described on pages 44 and 45 in discussion of Fig. 22, with the year-by-year process of each simulation using different return rates for different years specified in the sentence on lines 18-23. Fig. 22 illustrates individual simulations, showing that each simulation reflects different return rates for different years. Fig. 25 and the description of it on page 46, lines 15-25, illustrate and explain the claimed invention's development of a final wealth probability distribution from a large number of these year-by-year simulations.

Through the claimed invention's development of future investment result probabilities from period-by-period simulations each with different return rates for different years, the claimed invention overcomes all the limitations of Edesess related to Edesess not incorporating and reflecting full effects of year-to-year return-rate variation. In the claimed invention, the simulations incorporate and reflect the long-term-result-lowering effect of "deviation drag." In the claimed invention, in each simulation, amounts invested for different periods probabilistically experience different return rates producing different return-rate averages, and amounts invested for fewer periods have less effect of reversion toward the mean and greater probabilities that the averages of their return rates will have larger deviations from the expected return rate.

Each probability distribution produced for final wealth will be what the actual testing of simulation shows it to be, not based on an assumption that it is lognormal.

There is another important way in which the claimed invention's analytic approach of year-by-year simulation, as distinguished from the Edesess single-rate-for-all-periods approach, provides unique advantage over Edesess: informing the investor. This leads to the third fundamental uniqueness of the claimed invention relative to the prior art generally and Edesess specifically.

Purpose: Inform the Investor

The third difference between the claimed invention is the very purpose for which each is designed – the role it is designed to play in the individual's investment decision process.

Edesess is based on the idea that Edesess should ***decide for*** the investor.

Edesess has decided exactly how investors' optimal portfolio should be calculated – probability of meeting a pre-goals wealth accumulation target and a similar probability for a fallback. And using that Edesess-decided criterion and numbers obtained from the investor for its calculation, Edesess decides what portfolio is optimal for the investor.

The claimed invention is based on the idea that the invention should ***inform*** the investor, so the investor can decide, and also maintain informed commitment to the choice. For the investor's plan and goals, the claimed invention informs the investor of how portfolios compare in four measures of prospects, so the investor can judge which portfolio offers prospects that best fit his plan, goals, and priorities, select that portfolio, and maintain an informed commitment to his choice

This difference is most fundamental and important.

Four criteria

For assessing, comparing, and selecting portfolios that offer optimal prospects for individuals' lifetime plans, goals, and priorities, all four criteria listed below are essential:

1. ***Probability of meeting all the investor's goals*** -- Generally, for investment comparison this is the most important single-number measure.
2. ***Probabilities for <u>how far above</u> the goals the result may be*** -- Commonly, compared to an investment with best goals-meeting probability, there are other investments that are close to best in goals-meeting probability but offer much better probabilities for much higher results, and are more attractive to aggressive investors.
3. ***Probabilities for how far <u>below</u> the goals the result may be*** -- Commonly, compared to an investment with best goals-meeting probability, there are other investments that are close to best in goals-meeting probability but offer much better probabilities that if the result falls short of the goals, the shortfall will be smaller, and are therefore more attractive to conservative investors.
4. ***Prospects for year-to-year variations in the path to the goals*** -- For many investors, short-term return-rate variations are of such concern that in prevailing investment-selection software tools and investment-advisor practice, instead of seeking

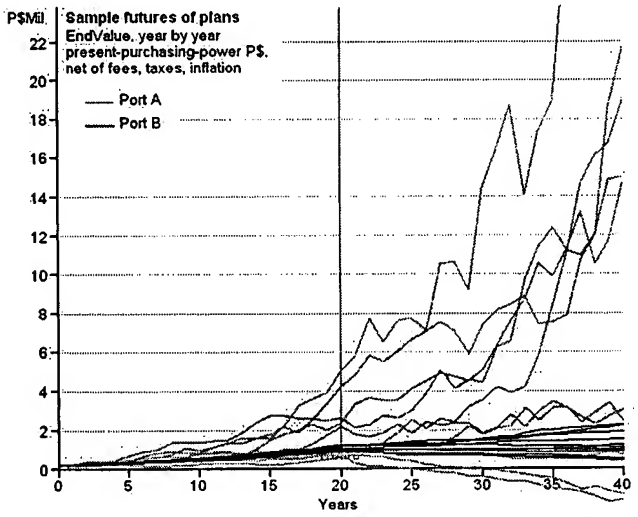
investments with optimal result probabilities for the investor's lifetime financial needs and goals, selection is based primarily on attempts to assess the investor's fear of short-term return-rate variations, which is called the investor's "risk tolerance."

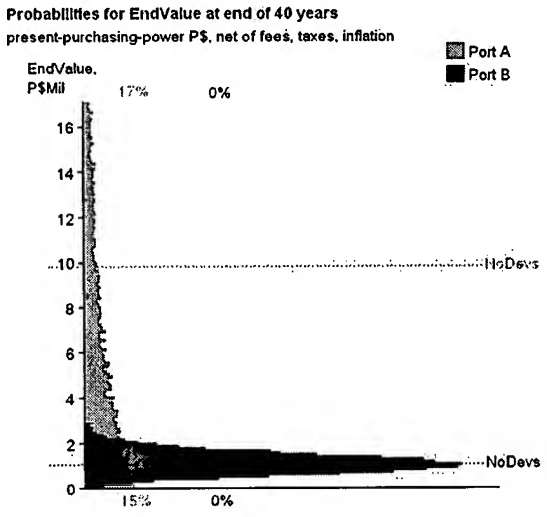
Different investors will weigh these four criteria very differently. Not every investor will consider all four important, but almost every individual investor will consider two or three or all four criteria important. To effectively inform individual investors, all four are essential.

Setting aside deficiencies of Edesess analysis discussed on preceding pages, Edesess has decided that the basis for determining an investor's portfolio is probability of achieving a stated amount at a stated future time – criterion 1 above. But portfolios that offer identical or very nearly the same rating on criterion 1 can offer radically different prospects on criteria 2, 3, and 4. These differences can be extremely important in determining which portfolios are optimal for various investors, and be important to different investors in very different ways.

To illustrate, consider again the 40-year example fully specified earlier in these pages, with the initial investment raised to $200,000 and the final wealth goal raised to $800,000. For this plan, in criterion 1 portfolios 1 and 11 offer identical prospects: each offers probability of meeting the future-wealth goal of 76%.

But on the other three criteria listed above, for this plan and goals these two portfolios offer radically different prospects, as illustrated by the two graphs below:





On these graphs, Port A is portfolio 11 and B is 1. (These graphs correspond to those in the claimed invention application shown and explained as Figs. 22-24 and 25-28 respectively.)

A more aggressive investor may place high priority on the vastly better upside potential of Port A. Of its ten simulations on the graph at left, five end with final wealth over $14 million, three of these over $18 million and one above the more-than-$23-million top of the graph. With scrolling on the graph at right, which is offered in an embodiment of the claimed invention, the aggressive investor can see that with Port A, chances are better than even the final wealth will be over $4 million, better than 1/3 it that will exceed $8 million, better than 1/6 that it will exceed $16 million.

On the other hand, a conservative investor may focus on different aspects of these comparisons on criteria 2, 3, and 4, and much prefer Port B. On the graph at left he will see that for Port A, two of the simulations plummets down below zero before his retirement needs are fully met. From the more comprehensive view of this risk presented on the graph at right, he can see that with Port A there is 15% risk of ending up below zero – running out of money before the retirement income goals are fully met. With Port B there is no such risk. And turning back to the graph at left, he will see that for his preferred Port B, the path through the years is smooth, while with Port A there is way too much wild up-and-down uncertainty for him and his wife to sleep at night.

In terms of how different these two portfolios are, this is an especially dramatic example. But it illustrates a virtually universal reality: portfolios offering identical or almost-identical ratings in criterion #1, probabilities of meeting the goals, offer quite different prospects for criteria 2-3-4, and with respect to these four criteria, different investors have very different priorities.

The best way, perhaps the only way, to effectively zero in on portfolios that are optimal for an investor in balance among these criteria is to enable the investor to see the comparisons and choose. And considering that this is about the investor's life savings and sunset years, the investor deserves to see his investment's prospects in all these respects.

In informing individual investors, something along the line of the graph at left above is essential to inform the investor of the kind of path his investment is likely to follow year by year through the life of his plan. Unless well informed on this matter, most individual investors are so fearful of short-term return-rate variations that most of the investment industry and most of the

prior art in this field exploit this fear in a kind of investment-selection process that ignores pursuit of best prospects for the investor's future in favor of extraction of higher investment-industry fees.

In this prevailing prior art, a practice is applied that can be labeled "divert-and-switch." In this process, step one is to misapply Markowitz-based asset allocation diversification theory to divert the focus of portfolio selection from the investor's future needs and goals to return-rate of the individual year, with emphasis on the investor's fear of individual-year return-rate variation. For this purpose, the technical measure of short-term return-rate variation correctly labeled as return-rate standard deviation is labeled with the fear-word "risk" and selection of a portfolio for an investor is based on attempts to gage his so-called "risk tolerance" – meaning his fear of short-term return-rate variation. This is done without ever showing the investor, or even considering, which portfolios offer best prospects for his future or how much worse in this respect the selected portfolio may be.

For the investor this is pure diversion from pursuit of his best interests– but for the investment industry it is most beneficial. With attention diverted to the individual year, the investor cannot see the terrible effect in choking long-term value growth from higher investment fees.

The second half of this process is the switch. With the investor unable to see how higher fees will choke off their investments' potential longer-term value growth, the investor is led to abandon the asset-class diversification theory that was used for the diversion, in favor of other investments with higher fees. There are thousands of such investments, representing an ocean of opportunity for so-called investment data, analysis, and management, for all of which investors are charged those fees.

To effectively inform investors for pursuit and selection of investments optimal for their plans, goals, and priorities, it is certainly essential to enable them to see and compare portfolios in measures of probability for their longer-term goals, in criteria 1, 2, and 3. But to help them deal effectively with short-term return-rate variations that will scare uninformed investors off

track, it is also essential to inform them on criterion 4 -- on what portfolios they might consider offer in prospects for year-by-year path along the way, as illustrated by the graph at left above.

Claimed invention – The claimed invention is designed to inform investors for investment selection by enabling investors to see what portfolios offer and how they compare in all four criteria.

For the full horizon of the investor's plan and goals, with full effects of return-rate variations along the way, it produces assessments and comparison of a series of portfolios in probability for meeting the investor's goals, revealing which are best and others close to best. That's criterion #1. For any of these portfolios the investor wants to compare more closely, the claimed invention produces assessments for showing comparisons like the graph at right just above, on which the investor can scroll up and down for assessments and comparisons on criteria 2 and 3 – probabilities for how far above or below the goals the result may be. And from the simulations produced for those comparisons, the claimed invention has produced results to show the investor examples comparing portfolios in year-by-year paths to the investor's goals, as illustrated by the graph at left above. That's criterion 4.

Edesess – Edesess is instead designed for Edesess to decide – for Edesess to decide the portfolio-selection method, and for Edesess to identify the portfolio the Edesess selection method shows to be optimal. For plans with multiple periods of investment addition or withdrawals for multi-period goals, Edesess does *not* inform the investment of what portfolios offer and how they compare on the four criteria, or on any of the four criteria.

As discussed on prior pages, the Edesess analytic system is not suited for plans with investment additions or withdrawals during the time horizon. Edesess never addresses portfolios' probabilities for meeting investors' multi-period goals. That eliminates criteria 1, 2, and 3. And since Edesess addresses investments' performance only in terms of constant return rates instead of year-to-year return-rate variations, it never addresses analysis for criterion 4.

Usefulness

The claimed invention is not just a product plan – an embodiment exists in the form of a product in use. The illustrations in the application represent an early working version, and those in this memo represent a more refined working version. While the number of users is tiny, it is used by credentialed financial planners and investment advisors guiding individual investors.

There are roughly 100 million individual investors in the USA, most investing primarily in hopes of meeting their retirement needs. For most of these, chances of meeting retirement needs depend on wise investment selection.

Unfortunately, for almost all of these investors, the best investment guidance available is shaped by the prevailing prior art described just above: the process of divert-and-switch, ignoring pursuit of investors' best interests in favor of higher investment industry fees. Excluding the claimed invention, the field of tools for individual and their advisors is overwhelmingly dominated by the process of divert-and-switch without pursuit of best result probabilities for investors' future needs and goals.

Among employers, there is now an overwhelming trend to abandon employee pension plans, which formerly provided ensured retirement income, in favor of 401(k) retirement plans in which the employee is responsible for choosing the investments on which his retirement financing depends.

Late last year, Congress enacted legislation providing new authorizations for investment professionals to provide 401(k)-holding employees investment advice using a computer model. As this memo is written, the U.S. Labor Department is developing rules for what kind or kinds of computer model to approve for this purpose. Major investment industry organizations that practice and advocate the prevailing prior art, applying the process of divert-and-switch, are advising the Labor Department regarding rules for what kinds of computer model to approve for advising the nation's work force in investment selection for retirement.

Considering the numbers of people to whom life-goals investment is of concern, its importance to their futures, and the extent to which the claimed invention represents

improvement in individuals' investment-selection guidance over prevailing practice and prior art including Edesess, the claimed invention is very useful.

Amendments

In response to the Examiner's review, the independent Claims 1 and 71 have been amended to state clearly the following characteristics of the claimed invention:

1. The time horizon for which investments' result probabilities are assessed is the full time horizon over which the investment is held to meet the investor's goals, including periods of investment additions and also periods of withdrawals for the investor's goals including at least one such withdrawal to meet a goal in a period before the end of the time horizon.
2. The analytic method through which result probabilities are assessed fully incorporates and reflects effects of year-to-year return-rate variations.
3. The purpose is to inform the investor for optimal portfolio selection, and for this purpose a series of portfolio plans are assessed and compared and the best revealed in probability of meeting the investor's goals, and assessments are prepared for the investor's comparison of the portfolios in other criteria including probabilities for how far above the goals the final wealth result may be, probabilities for how far below the goals the final wealth result may be, and prospects for year-by-year path of wealth variation through the time horizon from initial investment to final wealth goal.

In these claims as amended, the words "unique allocation proportions" and "best diversified portfolios" are not used.

The other claims, 2-70 and 72-74, which are dependent from claim 1 or claim 71, have been amended, or in a few cases deleted, to conform with the amended independent claims 1 and 71.

Additionally, the title has been amended to more clearly distinguish the claimed invention from the prior art including Edesess, especially regarding its purpose being informing the

investor for investment selection, as distinguished from the prior art including Edesess wherein the purpose is the invention's making of investment selection decisions.

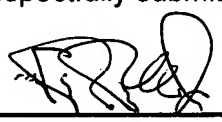
With Claims 1 and 71 as amended being unique in comparison to the prior art including Edesess with respect to the features summarized just above, as stated in the independent claims 1 and 71 as amended, and as described in these remarks, the independent claims 1 and 71 should be allowed.

If the rejection of the independent claims 1 and 71, as now amended, should be continued, it is respectfully requested that it be described and illustrated with particularity how assessments and comparisons conforming to the features 1, 2, and 3 above are produced using Edesess. In the absence of a prima facie showing to that effect, amended claims 1 and 71 should be allowed.

With claims 1 and 71 as amended allowable, claims 2-70 and 72-74 which are dependent on claims 1 and 71 should be allowed in view of allowability of claims 1 and 71.

Therefore, reconsideration and allowance are requested.

Respectfully submitted,



W. Richard Purcell, Jr.

Date: May 24, 2007